

Chapter 3 Cloud Computing Applications

From small start-ups to major corporations, companies of all sizes have embraced cloud computing for the scalability, reliability, and cost benefits it can provide. It has even been said that cloud computing may have a greater effect on our lives than the PC and dot-com revolutions combined. Filled with comparative charts and decision trees, Impleme

Mobile Cloud Computing: Models, Implementation, and Security provides a comprehensive introduction to mobile cloud computing, including key concepts, models, and relevant applications. The book focuses on novel and advanced algorithms, as well as mobile app development. The book begins with an overview of mobile cloud computing concepts, models, and service deployments, as well as specific cloud service models. It continues with the basic mechanisms and principles of mobile computing, as well as virtualization techniques. The book also introduces mobile cloud computing architecture, design, key techniques, and challenges. The second part of the book covers optimizations of data processing and storage in mobile clouds, including performance and green clouds. The crucial optimization algorithm in mobile cloud computing is

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also explored, along with big data and service computing. Security issues in mobile cloud computing are covered in-depth, including a brief introduction to security and privacy issues and threats, as well as privacy protection techniques in mobile systems. The last part of the book features the integration of service-oriented architecture with mobile cloud computing. It discusses web service specifications related to implementations of mobile cloud computing. The book not only presents critical concepts in mobile cloud systems, but also drives readers to deeper research, through open discussion questions. Practical case studies are also included. Suitable for graduate students and professionals, this book provides a detailed and timely overview of mobile cloud computing for a broad range of readers.

The Cloud is an advanced and fast-growing technology in the current era. The computing paradigm has changed drastically. It provided a new insight into the computing world with new characteristics including on-demand, virtualization, scalability and many more. Utility computing, virtualization and service-oriented architecture (SoA) are the key characteristics of Cloud computing. The Cloud provides distinct IT services over the web on a pay-as-you-go and on-demand basis. Cloud Computing Technologies for Smart Agriculture and Healthcare covers Cloud management and its

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framework. It also focuses how the Cloud computing framework can be integrated with applications based on agriculture and healthcare. Features: Contains a systematic overview of the state-of-the-art, basic theories, challenges, implementation, and case studies on Cloud technology Discusses of recent research results and future advancement in virtualization technology Focuses on core theories, architectures, and technologies necessary to develop and understand the computing models and its applications Includes a wide range of examples that uses Cloud technology for increasing farm profitability and sustainable production Presents the farming industry with Cloud technology that allows it to aggregate, analyze, and share data across farms and the world Includes Cloud-based electronic health records with privacy and security features Offers suitable IT solutions to the global issues in the domain of agriculture and health care for society This reference book is aimed at undergraduate and post-graduate programs. It will also help research scholars in their research work. This book also benefits like scientists, business innovators, entrepreneurs, professionals, and practitioners. An exploration of the benefits of cloud computing in geoscience research and applications as well as future research directions, Spatial Cloud Computing: A Practical Approach discusses the essential elements of cloud computing and their advantages

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for geoscience. Using practical examples, it details the geoscience requirements of cloud computing, covers general procedures and considerations when migrating geoscience applications onto cloud services, and demonstrates how to deploy different applications. The book discusses how to choose cloud services based on the general cloud computing measurement criteria and cloud computing cost models. The authors examine the readiness of cloud computing to support geoscience applications using open source cloud software solutions and commercial cloud services. They then review future research and developments in data, computation, concurrency, and spatiotemporal intensities of geosciences and how cloud service can be leveraged to meet the challenges. They also introduce research directions from the aspects of technology, vision, and social dimensions. *Spatial Cloud Computing: A Practical Approach* a common workflow for deploying geoscience applications and provides references to the concepts, technical details, and operational guidelines of cloud computing. These features and more give developers, geoscientists, and IT professionals the information required to make decisions about how to select and deploy cloud services.

This two-volume set (CCIS 150 and CCIS 151) constitutes the refereed proceedings of the Second International Conference on Ubiquitous Computing

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and Multimedia Applications, UCMA 2011, held in Daejeon, Korea, in April 2011. The 86 revised full papers presented were carefully reviewed and selected from 570 submissions. Focusing on various aspects of advances in multimedia applications and ubiquitous computing with computational sciences, mathematics and information technology the papers present current research in the area of multimedia and ubiquitous environment including models and systems, new directions, novel applications associated with the utilization, and acceptance of ubiquitous computing devices and systems.

Whether you're already in the cloud, or determining whether or not it makes sense for your organization, *Cloud Computing and Software Services: Theory and Techniques* provides the technical understanding needed to develop and maintain state-of-the-art cloud computing and software services. From basic concepts and recent research findings to fut

Cloud Computing in Ocean and Atmospheric Sciences provides the latest information on this relatively new platform for scientific computing, which has great possibilities and challenges, including pricing and deployments costs and applications that are often presented as primarily business oriented. In addition, scientific users may be very familiar with these types of models and applications, but relatively unfamiliar with the

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intricacies of the hardware platforms they use. The book provides a range of practical examples of cloud applications that are written to be accessible to practitioners, researchers, and students in affiliated fields. By providing general information on the use of the cloud for oceanographic and atmospheric computing, as well as examples of specific applications, this book encourages and educates potential users of the cloud. The chapters provide an introduction to the practical aspects of deploying in the cloud, also providing examples of workflows and techniques that can be reused in new projects.

Provides real examples that help new users quickly understand the cloud and provide guidance for new projects
Presents proof of the usability of the techniques and a clear path to adoption of the techniques by other researchers
Includes real research and development examples that are ideal for cloud computing adopters in ocean and atmospheric domains

With its cost efficiency, enabling of collaboration and sharing of resources, and its ability to improve access, cloud computing is likely to play a big role in the classrooms of tomorrow. *Cloud Computing for Teaching and Learning: Strategies for Design and Implementation* provides the latest information about cloud development and cloud applications in teaching and learning. The book also includes empirical research findings in these areas for

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professionals and researchers working in the field of e-learning who want to implement teaching and learning with cloud computing, as well as provide insights and support to executives concerned with cloud development and cloud applications in e-learning communities and environments.

The first textbook to teach students how to build data analytic solutions on large data sets using cloud-based technologies. This is the first textbook to teach students how to build data analytic solutions on large data sets (specifically in Internet of Things applications) using cloud-based technologies for data storage, transmission and mashup, and AI techniques to analyze this data.

This textbook is designed to train college students to master modern cloud computing systems in operating principles, architecture design, machine learning algorithms, programming models and software tools for big data mining, analytics, and cognitive applications. The book will be suitable for use in one-semester computer science or electrical engineering courses on cloud computing, machine learning, cloud programming, cognitive computing, or big data science. The book will also be very useful as a reference for professionals who want to work in cloud computing and data science. Cloud and Cognitive Computing begins with two introductory chapters on fundamentals of cloud computing, data science, and adaptive computing that lay the foundation for the rest of the book. Subsequent chapters cover topics including cloud architecture, mashup services, virtual machines, Docker containers, mobile clouds, IoT

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and AI, inter-cloud mashups, and cloud performance and benchmarks, with a focus on Google's Brain Project, DeepMind, and X-Lab programs, IBKai HwangM SyNapse, Bluemix programs, cognitive initiatives, and neurocomputers. The book then covers machine learning algorithms and cloud programming software tools and application development, applying the tools in machine learning, social media, deep learning, and cognitive applications. All cloud systems are illustrated with big data and cognitive application examples.

Cloud computing has created a shift from the use of physical hardware and locally managed software-enabled platforms to that of virtualized cloud-hosted services. Cloud assembles large networks of virtual services, including hardware (CPU, storage, and network) and software resources (databases, message queuing systems, monitoring systems, and load-balancers). As Cloud continues to revolutionize applications in academia, industry, government, and many other fields, the transition to this efficient and flexible platform presents serious challenges at both theoretical and practical levels—ones that will often require new approaches and practices in all areas. Comprehensive and timely, *Cloud Computing: Methodology, Systems, and Applications* summarizes progress in state-of-the-art research and offers step-by-step instruction on how to implement it. Summarizes Cloud Developments, Identifies Research Challenges, and Outlines Future Directions Ideal for a broad audience that includes researchers, engineers, IT professionals, and graduate students, this book is

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designed in three sections: Fundamentals of Cloud Computing: Concept, Methodology, and Overview Cloud Computing Functionalities and Provisioning Case Studies, Applications, and Future Directions It addresses the obvious technical aspects of using Cloud but goes beyond, exploring the cultural/social and regulatory/legal challenges that are quickly coming to the forefront of discussion. Properly applied as part of an overall IT strategy, Cloud can help small and medium business enterprises (SMEs) and governments in optimizing expenditure on application-hosting infrastructure. This material outlines a strategy for using Cloud to exploit opportunities in areas including, but not limited to, government, research, business, high-performance computing, web hosting, social networking, and multimedia. With contributions from a host of internationally recognized researchers, this reference delves into everything from necessary changes in users' initial mindset to actual physical requirements for the successful integration of Cloud into existing in-house infrastructure. Using case studies throughout to reinforce concepts, this book also addresses recent advances and future directions in methodologies, taxonomies, IaaS/SaaS, data management and processing, programming models, and applications.

Cloud computing offers many advantages to researchers and engineers who need access to high performance computing facilities for solving particular compute-intensive and/or large-scale problems, but whose overall high performance computing (HPC) needs do not justify the acquisition and operation of dedicated HPC facilities.

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There are, however, a number of fundamental problems which must be addressed, such as the limitations imposed by accessibility, security and communication speed, before these advantages can be exploited to the full. This book presents 14 contributions selected from the International Research Workshop on Advanced High Performance Computing Systems, held in Cetraro, Italy, in June 2012. The papers are arranged in three chapters. Chapter 1 includes five papers on cloud infrastructures, while Chapter 2 discusses cloud applications. The third chapter in the book deals with big data, which is nothing new – large scientific organizations have been collecting large amounts of data for decades – but what is new is that the focus has now broadened to include sectors such as business analytics, financial analyses, Internet service providers, oil and gas, medicine, automotive and a host of others. This book will be of interest to all those whose work involves them with aspects of cloud computing and big data applications.

The complete reference guide to the hot technology of cloud computing Its potential for lowering IT costs makes cloud computing a major force for both IT vendors and users; it is expected to gain momentum rapidly with the launch of Office Web Apps later this year. Because cloud computing involves various technologies, protocols, platforms, and infrastructure elements, this comprehensive reference is just what you need if you'll be using or implementing cloud computing. Cloud computing offers significant cost savings by eliminating upfront expenses for hardware and software; its growing

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popularity is expected to skyrocket when Microsoft introduces Office Web Apps This comprehensive guide helps define what cloud computing is and thoroughly explores the technologies, protocols, platforms and infrastructure that make it so desirable Covers mobile cloud computing, a significant area due to ever-increasing cell phone and smartphone use Focuses on the platforms and technologies essential to cloud computing Anyone involved with planning, implementing, using, or maintaining a cloud computing project will rely on the information in Cloud Computing Bible.

Many professional fields have been affected by the rapid growth of technology and information. Included in this are the business and management markets as the implementation of e-commerce and cloud computing have caused enterprises to make considerable changes to their practices. With the swift advancement of this technology, professionals need proper research that provides solutions to the various issues that come with data integration and shifting to a technology-driven environment. Cloud Computing Applications and Techniques for E-Commerce is an essential reference source that discusses the implementation of data and cloud technology within the fields of business and information management. Featuring research on topics such as content delivery networks, virtualization, and software resources, this book is ideally designed for managers, educators, administrators, researchers, computer scientists, business practitioners, economists, information analysts, sociologists, and students seeking coverage on the recent advancements of e-

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commerce using cloud computing techniques.

Continuous improvements in data analysis and cloud computing have allowed more opportunities to develop systems with user-focused designs. This not only leads to higher success in day-to-day usage, but it increases the overall probability of technology adoption. Advancing Cloud Database Systems and Capacity Planning With Dynamic Applications is a key resource on the latest innovations in cloud database systems and their impact on the daily lives of people in modern society.

Highlighting multidisciplinary studies on information storage and retrieval, big data architectures, and artificial intelligence, this publication is an ideal reference source for academicians, researchers, scientists, advanced level students, technology developers and IT officials.

As the field of FinTech continues its progress, financial institutions must not only enhance their digitization, but also make serious efforts to understand the resulting new opportunities it creates. In line with these developments, TABF has published the book Basic knowledge on FinTech, which was designed by us as a reference for the FinTech Knowledge Test. Co-authored by TABF staff and other experts, it features balanced and credible analysis, avoiding trivia and overly complex concepts while emphasizing readability. The content structure is based on the World Economic Forum (WEF)'s roadmap for FinTech development, adding in TABF's research findings plus other domestic and international trends and practices. Not only is Basic knowledge on FinTech suitable for financial proficiency testing, but it can also be used as a textbook in university

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courses, supplementing theoretical knowledge with up-to-date practical knowledge in this rapidly changing field. The 6th FTRA International Conference on Computer Science and its Applications (CSA-14) will be held in Guam, USA, Dec. 17 - 19, 2014. CSA-14 presents a comprehensive conference focused on the various aspects of advances in engineering systems in computer science, and applications, including ubiquitous computing, U-Health care system, Big Data, UI/UX for human-centric computing, Computing Service, Bioinformatics and Bio-Inspired Computing and will show recent advances on various aspects of computing technology, Ubiquitous Computing Services and its application.

Cloud computing is gaining in importance in the industry, and especially within small- and medium-sized companies due to the many benefits that may be generated in terms of cost savings, faster time to market, scalability, cost flexibility, and the optimization of resources. Today, cloud computing is considered as the next IT revolution, and the number of articles, books, papers, and technical reports flood literature. Within the scope of this book, relevant cloud computing applications for small- and medium- sized companies are identified, and the key success factors for the adoption of cloud computing services are analyzed based on the empirical investigation performed as part of this work. Finally, the benefits and constraints of the different cloud computing service models are presented including also the state-of-the-art research in the cloud computing area, and a summary of the most important results.

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As information systems used for research and educational purposes have become more complex, there has been an increase in the need for new computing architecture. High performance and cloud computing provide reliable and cost-effective information technology infrastructure that enhances research and educational processes. Handbook of Research on High Performance and Cloud Computing in Scientific Research and Education presents the applications of cloud computing in various settings, such as scientific research, education, e-learning, ubiquitous learning, and social computing. Providing various examples, practical solutions, and applications of high performance and cloud computing; this book is a useful reference for professionals and researchers discovering the applications of information and communication technologies in science and education, as well as scholars seeking insight on how modern technologies support scientific research.

The implementation of cloud technologies in healthcare is paving the way to more effective patient care and management for medical professionals around the world. As more facilities start to integrate cloud computing into their healthcare systems, it is imperative to examine the emergent trends and innovations in the field. Cloud Computing Systems and Applications in Healthcare features innovative research on the impact that cloud technology has on patient care, disease management, and the efficiency of various medical systems. Highlighting the challenges and difficulties in implementing cloud technology into the healthcare field,

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this publication is a critical reference source for academicians, technology designers, engineers, professionals, analysts, and graduate students. Librarians need to utilize web 2.0 tools to generate rich-text learning environments, creating enriching, challenging, and supportive learning platforms for students. The Teaching Librarian shows how to utilize wikis, mindmaps, and Second Life to improve pedagogy for librarians. This title covers how to obtain administration approval to implement web 2.0 tools, how to deal with and prevent technological glitches, and remain aware of relevant legal issues in the UK and the USA. The book also outlines how to create learning interfaces that meet the needs of nontraditional students. The six chapters cover key areas of pedagogy and web 2.0, including: the relevance of LibGuides and its uses for pedagogy; using cloud computing and mobile apps in teaching; teaching with Wikis, Second Life, and Mind Maps; practical issues with web 2.0 technology; and a chapter on the legal issues surrounding the use of web 2.0 for pedagogy. Provides examples of empirical research that tests the implementation of Second Life, wikis, and mind maps in pedagogical scenarios Offers research that enables pedagogy while remaining aware of and complying with current United Kingdom and US legal frameworks Provides case studies and empirical research showing how to gain acceptance of technology in academic environments

This IBM® Redbooks® publication highlights IBM Technical Computing as a flexible infrastructure for clients looking to reduce capital and operational

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expenditures, optimize energy usage, or re-use the infrastructure. This book strengthens IBM SmartCloud® solutions, in particular IBM Technical Computing clouds, with a well-defined and documented deployment model within an IBM System x® or an IBM Flex System™. This provides clients with a cost-effective, highly scalable, robust solution with a planned foundation for scaling, capacity, resilience, optimization, automation, and monitoring. This book is targeted toward technical professionals (consultants, technical support staff, IT Architects, and IT Specialists) responsible for providing cloud-computing solutions and support.

Software applications once held on local computers and servers are beginning to shift to the public Internet sphere, and private health information is no exception. The likelihood of placing once restricted and private health records “in the cloud” is increasing. *Cloud Computing Applications for Quality Health Care Delivery* focuses on cloud technologies that could affect quality in the healthcare field. Leading experts in this area offer their knowledge and contribute to the demystification of healthcare in the Cloud. This publication will prove to be a useful tool for undergraduate and graduate students of healthcare quality and management, healthcare managers, and industry professionals.

Cloud computing is a model where computing resources (processors, storage, software) are offered as a utility from an indistinct location and boundaries to the user. Adoption of Cloud computing in recent years has gained momentum within various avenues round the globe due to its characteristics like elasticity, virtualization and pay-

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as-you-go pricing. In tune with the trend various companies have evolved which are offering web applications. These companies provide the system required to host the application to users on lease which saves them from purchasing. The book combines both theoretical and practical perspectives of cloud computing with a slant towards library and information centres. The book describes in detail about various companies which are providing cloud computing solutions and infrastructure for library and information centres.

Initiatives of OCLC and best practices adopted in other libraries around the world has been discussed at length. Many avenues of the implementation of cloud computing has been identified in the present study. Various initiatives of the library professionals to move their internet sites, their integrated library system for cataloguing and acquisition, Cloud based library apps, Cloud based Stack Map and their repository systems and inter library loan systems to the cloud has been mentioned. The book further proposes a model which may serve as a blueprint for implementation of cloud computing technologies in libraries. With the timely publication of book, library and information service practitioners after going through the book can outsource the task of maintaining the computer infrastructure and focus on their mission to serve people with right information at right point of time.

Product Description Amazon Cloud Computing With C#/.Net provides A comprehensive look at the emerging Amazon Web Services Platform and a peep into the emerging paradigm of cloud computing from the

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perspective of the leading Cloud vendors offerings. It will enable you to plan migration efforts from enterprise softwares to ones operating from the cloud. The book is technical in nature and walks the reader through development of tools and programs which work with AWS. The book is accompanied by the complete source code to the excercises covered in the book, which can be downloaded from the authors website. 'A no fluff just stuff' approach to utilizing AWS. Amazon Cloud Computing With C#/.Net covers - EC2 - CloudWatch - Elastic LoadBalancing - AutoScaling - S3 - Virtual Private Cloud - SimpleDB - RDS - CloudFront - SQS - Elastic MapReduce - Agile Continous Integration with AWS

Resource-intensive Mobile Application (RMA) execution is inhibited by mobile de- vice constrained resources, particularly CPU, RAM, storage, and battery. However, Mobile Cloud Computing (MCC) as the state-of-the-art mobile computing paradigm is aiming to augment computing capabilities of mobile devices, mitigate their resource-deficiency, and realize efficient execution of RMA. MCC solutions dominantly perform remote execution of resource-intensive RMAs' components using resources-rich Distant Immobile Cloud (DIC), particularly public cloud. Although DICs feature high availability and elastic scalability, they are characterized by high communication latency and lack of mobility. Therefore, performance gains of mobile augmentation using DIC are mitigated and RMA execution efficiency is remarkably degraded. In this study, we aim to achieve efficient execution of RMAs by proposing a lightweight MCC framework. We verify the problem significance by analyzing time and energy overheads of exploiting DICs for augmenting resource-constraint mobile

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devices.

Amazon Cloud Computing With Java provides A comprehensive look at the emerging Amazon Web Services Platform and a peep into the emerging paradigm of cloud computing from the perspective of the leading Cloud vendors offerings. It will enable you to plan migration efforts from enterprise softwares to ones operating from the cloud. The book is technical in nature and walks the reader through development of tools and programs which work with AWS. The book is accompanied by the complete source code to the excercises covered in the book, which can be downloaded from the authors website. 'A no fluff just stuff' approach to utilizing AWS. Amazon Cloud Computing With Java covers - EC2 - CloudWatch - Elastic LoadBalancing - AutoScaling - S3 - Virtual Private Cloud - SimpleDB - RDS - CloudFront - SQS - Elastic MapReduce - Agile Continous Integration with AWS - Using Eclipse For AWS Development

Market_Desc: Microsoft .NET Developers and managers;

SQL Server developers and managers; IT managers Special

Features: · The author writes extensively in print and online about the Azure Services Platform and .NET development.

He is using these platforms to aggressively promote the book.· He's very active in the Microsoft

community--contributing editor to Visual Studio Magazine and columnist for Fawcette Technical online publications.· The

Azure Services Platform marks Microsoft's entry into the the most anticipated and talked about new development in the

computer industry---cloud computing. About The Book: Part 1 begins by 1) defining the term cloud computing and

contrasting it with application hosting, 2) comparing Azure to earlier (competitive) horizontal implementations, the Google

App Engine, and others, hosted .NET-centric business applications, and 3) examining issues that .NET developers

and IT departments face in moving from on-premise to cloud-

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based applications/projects, such as security privacy, regulatory compliance (Sarbanes-Oxley, SEC, etc.), backup and recovery, asset cataloging and management, and other common technical concerns. Part 1 then moves on to describe all major Azure Platform components, comparing them with competitor's related offerings for capability and programming ease. Part 2 covers basic programming for individual Azure components: Storage (tables, blobs and queues), SQL Data Services (relational vs. tuple-based structured storage), and .NET Services (Access Control, Workflow, and Service Bus). Part 3 covers the more advanced programming challenges of creating useful projects that combine cloud storage with Web applications or services. (Part 3 anticipates that the Azure team will have a substantially larger repertoire of sample projects available by the estimated chapter submittal schedule.) The book's companion website will include complete, finished applications capable of being uploaded to a Windows Azure project and run in production. This book presents the latest research on Software Engineering Frameworks for the Cloud Computing Paradigm, drawn from an international selection of researchers and practitioners. The book offers both a discussion of relevant software engineering approaches and practical guidance on enterprise-wide software deployment in the cloud environment, together with real-world case studies. Features:

- presents the state of the art in software engineering approaches for developing cloud-suitable applications;
- discusses the impact of the cloud computing paradigm on software engineering;
- offers guidance and best practices for students and practitioners;
- examines the stages of the software development lifecycle, with a focus on the requirements engineering and testing of cloud-based applications;
- reviews the efficiency and performance of cloud-based applications;
- explores feature-driven and cloud-aided

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software design; provides relevant theoretical frameworks, practical approaches and future research directions.

Cloud Computing: Theory and Practice provides students and IT professionals with an in-depth analysis of the cloud from the ground up. Beginning with a discussion of parallel computing and architectures and distributed systems, the book turns to contemporary cloud infrastructures, how they are being deployed at leading companies such as Amazon, Google and Apple, and how they can be applied in fields such as healthcare, banking and science. The volume also examines how to successfully deploy a cloud application across the enterprise using virtualization, resource management and the right amount of networking support, including content delivery networks and storage area networks. Developers will find a complete introduction to application development provided on a variety of platforms. Learn about recent trends in cloud computing in critical areas such as: resource management, security, energy consumption, ethics, and complex systems Get a detailed hands-on set of practical recipes that help simplify the deployment of a cloud based system for practical use of computing clouds along with an in-depth discussion of several projects Understand the evolution of cloud computing and why the cloud computing paradigm has a better chance to succeed than previous efforts in large-scale distributed computing

This book provides an overview of the problems involved in engineering scalable, elastic, and cost-efficient cloud computing services and describes the CloudScale method — a description of rescuing tools and the required steps to exploit these tools. It allows readers to analyze the scalability problem in detail and identify scalability anti-patterns and bottlenecks within an application. With the CloudScale method, software architects can analyze both existing and

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planned IT services. The method allows readers to answer questions like: • With an increasing number of users, can my service still deliver acceptable quality of service? • What if each user uses the service more intensively? Can my service still handle it with acceptable quality of service? • What if the number of users suddenly increases? Will my service still be able to handle it? • Will my service be cost-efficient? First the book addresses the importance of scalability, elasticity, and cost-efficiency as vital quality-related attributes of modern cloud computing applications. Following a brief overview of CloudScale, cloud computing applications are then introduced in detail and the aspects that need to be captured in models of such applications are discussed. In CloudScale, these aspects are captured in instances of the ScaleDL modeling language. Subsequently, the book describes the forward engineering part of CloudScale, which is applicable when developing a new service. It also outlines the reverse and reengineering parts of CloudScale, which come into play when an existing (legacy) service is modified. Lastly, the book directly focuses on the needs of both business-oriented and technical managers by providing guidance on all steps of implementing CloudScale as well as making decisions during that implementation. The demonstrators and reference projects described serve as a valuable starting point for learning from experience. This book is meant for all stakeholders interested in delivering scalable, elastic, and cost-efficient cloud computing applications: managers, product owners, software architects and developers alike. With this book, they can both see the overall picture as well as dive into issues of particular interest.

Modern businesses are on the lookout for ventures that boost their profits and marketability. Certain new and innovative technological advances can help enterprises accomplish their ambitious goals while providing detailed information to assess

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all aspects of the business. *Global Virtual Enterprises in Cloud Computing Environments* is a collection of innovative studies on business processes, procedures, methods, strategy, management thinking, and utilization of technology in cloud computing environments. While highlighting topics including international business strategy, virtual reality, and intellectual capital, this book is ideally designed for corporate executives, research scholars, and students pursuing courses in the areas of management and big data applications seeking current research on effective open innovation strategies in global business.

Business and IT organizations are currently embracing new strategically sound concepts in order to be more customer-centric, competitive, and cognitive in their daily operations. While useful, the various software tools, pioneering technologies, as well as their unique contributions largely go unused due to the lack of information provided on their special characteristics. *Novel Practices and Trends in Grid and Cloud Computing* is a collection of innovative research on the key concerns of cloud computing and how they are being addressed, as well as the various technologies and tools empowering cloud theory to be participative, penetrative, pervasive, and persuasive. While highlighting topics including cyber security, smart technology, and artificial intelligence, this book is ideally designed for students, researchers, and business managers on the lookout for innovative IT solutions for all the business automation software and improvisations of computational technologies.

Distributed and Cloud Computing: From Parallel Processing to the Internet of Things offers complete coverage of modern distributed computing technology including clusters, the grid, service-oriented architecture, massively parallel processors, peer-to-peer networking,

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and cloud computing. It is the first modern, up-to-date distributed systems textbook; it explains how to create high-performance, scalable, reliable systems, exposing the design principles, architecture, and innovative applications of parallel, distributed, and cloud computing systems. Topics covered by this book include: facilitating management, debugging, migration, and disaster recovery through virtualization; clustered systems for research or ecommerce applications; designing systems as web services; and social networking systems using peer-to-peer computing. The principles of cloud computing are discussed using examples from open-source and commercial applications, along with case studies from the leading distributed computing vendors such as Amazon, Microsoft, and Google. Each chapter includes exercises and further reading, with lecture slides and more available online. This book will be ideal for students taking a distributed systems or distributed computing class, as well as for professional system designers and engineers looking for a reference to the latest distributed technologies including cloud, P2P and grid computing. Complete coverage of modern distributed computing technology including clusters, the grid, service-oriented architecture, massively parallel processors, peer-to-peer networking, and cloud computing Includes case studies from the leading distributed computing vendors: Amazon, Microsoft, Google, and more Explains how to use virtualization to facilitate management, debugging, migration, and disaster recovery Designed for undergraduate or graduate students taking a distributed systems

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course—each chapter includes exercises and further reading, with lecture slides and more available online. In the era of the Internet of Things and with the explosive worldwide growth of electronic data volume, and associated need of processing, analysis, and storage of such a humongous amount of data, it has now become mandatory to exploit the power of massively parallel architecture for fast computation. Cloud computing provides a cheap source of such a computing framework for a large volume of data for real-time applications. It is, therefore, not surprising to see that cloud computing has become a buzzword in the computing fraternity over the last decade. Applications of Cloud Computing: Approaches and Practices lays a good foundation for the core concepts and principles of cloud computing applications, walking the reader through the fundamental ideas with expert ease. The book progresses on the topics in a step-by-step manner. It reinforces theory with a full-fledged pedagogy designed to enhance students' understanding and offer them a practical insight into the applications of it. It is a valuable source of knowledge for researchers, engineers, practitioners, and graduate and doctoral students working in the field of cloud computing. It will also be useful for faculty members of graduate schools and universities.

About the Book Recent industry surveys expect the cloud computing services market to be in excess of \$20 billion and cloud computing jobs to be in excess of 10 million worldwide in 2014 alone. In addition, since a majority of existing information technology (IT) jobs is focused on maintaining legacy in-house systems, the

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demand for these kinds of jobs is likely to drop rapidly if cloud computing continues to take hold of the industry. However, there are very few educational options available in the area of cloud computing beyond vendor-specific training by cloud providers themselves. Cloud computing courses have not found their way (yet) into mainstream college curricula. This book is written as a textbook on cloud computing for educational programs at colleges. It can also be used by cloud service providers who may be interested in offering a broader perspective of cloud computing to accompany their own customer and employee training programs. The typical reader is expected to have completed a couple of courses in programming using traditional high-level languages at the college-level, and is either a senior or a beginning graduate student in one of the science, technology, engineering or mathematics (STEM) fields. We have tried to write a comprehensive book that transfers knowledge through an immersive "hands-on approach", where the reader is provided the necessary guidance and knowledge to develop working code for real-world cloud applications. Additional support is available at the book's website: www.cloudcomputingbook.info

Organization The book is organized into three main parts. Part I covers technologies that form the foundations of cloud computing. These include topics such as virtualization, load balancing, scalability & elasticity, deployment, and replication. Part II introduces the reader to the design & programming aspects of cloud computing. Case studies on design and implementation of several cloud applications in the areas such as image

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processing, live streaming and social networks analytics are provided. Part III introduces the reader to specialized aspects of cloud computing including cloud application benchmarking, cloud security, multimedia applications and big data analytics. Case studies in areas such as IT, healthcare, transportation, networking and education are provided.

Despite the buzz surrounding the cloud computing, only a small percentage of organizations have actually deployed this new style of IT—so far. If you're planning your long-term cloud strategy, this practical book provides insider knowledge and actionable real-world lessons regarding planning, design, operations, security, and application transformation. This book teaches business and technology managers how to transition their organization's traditional IT to cloud computing. Rather than yet another book trying to sell or convince readers on the benefits of clouds, this book provides guidance, lessons learned, and best practices on how to design, deploy, operate, and secure an enterprise cloud based on real-world experience. Author James Bond provides useful guidance and best-practice checklists based on his field experience with real customers and cloud providers. You'll view cloud services from the perspective of a consumer and as an owner/operator of an enterprise private or hybrid cloud, and learn valuable lessons from successful and less-than-successful organization use-case scenarios. This is the information every CIO needs in order to make the business and technical decisions to finally execute on their journey to cloud computing. Get updated trends and definitions in

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cloud computing, deployment models, and for building or buying cloud services Discover challenges in cloud operations and management not foreseen by early adopters Use real-world lessons to plan and build an enterprise private or hybrid cloud Learn how to assess, port, and migrate legacy applications to the cloud Identify security threats and vulnerabilities unique to the cloud Employ a cloud management system for your enterprise (private or multi-provider hybrid) cloud ecosystem Understand the challenges for becoming an IT service broker leveraging the power of the cloud

Recent technology trends involving the combination of mobile networks and cloud computing have offered new chances for mobile network providers to use specific carrier-cloud services. These advancements will enhance the utilization of the mobile cloud in industry and corporate settings. *Mobile Networks and Cloud Computing Convergence for Progressive Services and Applications* is a fundamental source for the advancement of knowledge, application, and practice in the interdisciplinary areas of mobile network and cloud computing. By addressing innovative concepts and critical issues, this book is essential for researchers, practitioners, and students interested in the emerging field of vehicular wireless networks.

Introduction to Sensors in IoT and Cloud Computing Applications provides information about sensors and their applications. Readers are first introduced to the concept of small instruments and their application as sensors. The chapters which follow explain Internet of Things (IoT) architecture while providing notes on the

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implementation, demonstration and related issues of IoT systems. The book continues to explore the topic by providing information about sensor-cloud infrastructure, mobile cloud, fog computing (an extension of cloud computing that takes cloud computing to the cutting-edge of networking where data is produced) and integration of IoT devices with cloud computing. The book also presents notes on the taxonomy of fog-computing systems. The six chapters in this book provide essential information for general readers, and students of computer science to understand the basics of cloud computing networks, related concepts and applications.

Mastering Cloud Computing is designed for undergraduate students learning to develop cloud computing applications. Tomorrow's applications won't live on a single computer but will be deployed from and reside on a virtual server, accessible anywhere, any time. Tomorrow's application developers need to understand the requirements of building apps for these virtual systems, including concurrent programming, high-performance computing, and data-intensive systems. The book introduces the principles of distributed and parallel computing underlying cloud architectures and specifically focuses on virtualization, thread programming, task programming, and map-reduce programming. There are examples demonstrating all of these and more, with exercises and labs throughout. Explains how to make design choices and tradeoffs to consider when building applications to run in a virtual cloud environment Real-world case studies include

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scientific, business, and energy-efficiency considerations

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